



State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-051-01704 County Marshall District Clay  
Quad Powhatan, OH-WV Pad Name Berger Field/Pool Name \_\_\_\_\_  
Farm name Berger Well Number 4H  
Operator (as registered with the OOG) Chevron Appalachia, LLC  
Address 800 Mountain View Drive City Smithfield State PA Zip 15478

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4413871.14 Easting 520985.62  
Landing Point of Curve Northing 4414162.43 Easting 520910.16  
Bottom Hole Northing 4415716.70 Easting 519818.70

Elevation (ft) 1292' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)  
Non aqueous fluid containing weighting agent, fluid loss additive, emulsifier, viscosity and Rheological control agent, oil-wetting agent, fluid rheology conditioner

Date permit issued 2/26/2014 Date drilling commenced 6/18/2014 Date drilling ceased 1/24/2015  
Date completion activities began 8/4/2015 Date completion activities ceased 12/22/2015  
Verbal plugging (Y/N) N Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 169' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft \_\_\_\_\_ Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 768'-769', 784'-785', 830'-837', 1411'-1413', 1415'-1418' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No but not sealed

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Reviewed by: 38  
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04/08/2016  
AX 04/06/2016

API 47- 051 - 01704 Farm name Berger Well number 4H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	36	30	40	New	X-42; 118.76		
Surface	17 1/2	13 3/8	303	New	J-55; 54.50		
Coal							
Intermediate 1							
Intermediate 2	12 1/4	9 5/8	2677	New	N-80; 40		
Intermediate 3							
Production	8 1/2	5 1/2	13170	New	P-110; 20		
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Bulk	60					
Surface	Bulk	382	15.60	1.21	462	SURFACE	8
Coal							
Intermediate 1	A	1031	15.60	1.24	1278	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	A	2518	15.2	1.31	3298	SURFACE	8
Tubing							

Drillers TD (ft) 13,216      Loggers TD (ft) 13216  
 Deepest formation penetrated Marcellus      Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5538'

Check all wireline logs run       caliper     density     deviated/directional     induction  
     neutron     resistivity     gamma ray                     temperature     sonic

Well cored     Yes     No     Conventional     Sidewall      Were cuttings collected     Yes     No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_  
Surface String: 1 Bow spring centralizer halfway through the shoe track around a stop collar, 1 Bow spring centralizer per joint over connection to base of conductor. One ridged centralizer within top 40" inside conductor.  
 Intermediate String: 1 Bow spring centralizer halfway through the shoe track around a stop collar, and 1 bow spring centralizer over every other connection. Production casing 1 Solid Torque Slider Centralizer per joint to KOP, and 1 bow spring centralizer every other joint to surface after that.

WAS WELL COMPLETED AS SHOT HOLE     Yes     No    DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?     Yes     No    DETAILS \_\_\_\_\_

WERE TRACERS USED     Yes     No    TYPE OF TRACER(S) USED \_\_\_\_\_

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API: 47-5101704	Well Name: Berger	Well Number: 4H
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<b>PERFORATION RECORD</b>					
Stage No.	Perforation Date	Perforated From TMD Ft.	Perforated To TMD Ft.	Number of Perforations	Formation(s)
1	11/3/15	13127	12967	60	Marcellus
2	11/4/15	12813	12677	50	Marcellus
3	11/4/15	12629	12424	50	Marcellus
4	11/5/15	12379	12176	50	Marcellus
5	11/6/15	12129	11927	50	Marcellus
6	11/6/15	11879	11677	50	Marcellus
7	11/7/15	11629	11427	50	Marcellus
8	11/9/15	11379	11177	50	Marcellus
9	11/10/15	11129	10927	50	Marcellus
10	11/10/15	10879	10677	50	Marcellus
11	11/11/15	10629	10427	50	Marcellus
12	11/12/15	10379	10177	50	Marcellus
13	11/12/15	10129	9927	50	Marcellus
14	11/13/15	9877	9677	50	Marcellus
15	11/14/15	9629	9427	50	Marcellus
16	11/14/15	9379	9177	50	Marcellus
17	11/15/15	9129	8927	50	Marcellus
18	11/15/15	8882	8677	50	Marcellus
19	11/16/15	8633	8427	50	Marcellus
20	11/16/15	8384	8177	50	Marcellus
21	11/17/15	8124	7927	50	Marcellus
22	11/17/15	7875	7679	50	Marcellus
23	11/17/15	7629	7432	50	Marcellus
24	11/17/15	7377	7182	50	Marcellus
25	11/17/15	7129	6924	50	Marcellus
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Please insert additional copies of this page if additional rows/stages are needed.

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API: 47-5101704	Well Name: Berger	Well Number: 4H
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<b>STIMULATION INFORMATION / STAGE</b>								
Complete a separate record for each stimulation stage. (Please insert additional lines for additional stages or additional pages as applicable).								
Stg No.	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	11/3/15	90	8941	0	3860	392336	11384	
2	11/4/15	98	9675	5800	5111	499116	12721	
3	11/4/15	98	7989	6075	4473	501853	12620	
4	11/5/15	98	8246	5838	4482	498610	12468	
5	11/6/15	98	8407	5661	4444	502411	12569	
6	11/6/15	98	8153	6228	4635	480330	12357	
7	11/7/15	97	8192	5712	3939	502257	12542	
8	11/9/15	96	8694	5904	4040	502408	12504	
9	11/10/15	98	8018	5430	4146	499554	12458	
10	11/10/15	98	8045	5973	4615	500841	12383	
11	11/11/15	98	8337	6057	4548	502758	12473	
12	11/12/15	98	7520	6160	4660	499256	12397	
13	11/12/15	99	7666	5987	4549	499198	12354	
14	11/13/15	99	7559	6143	4413	501012	12389	
15	11/14/15	98	7529	6662	4213	500745	12302	
16	11/14/15	95	8527	6393	5051	504026	13705	
17	11/15/15	98	7790	6260	4370	500860	12326	
18	11/15/15	98	7540	7009	4571	470251	12016	
19	11/16/15	99	7272	6293	4884	506882	12334	
20	11/16/15	98	6790	6562	4571	501260	12283	
21	11/17/15	98	8737	6339	4414	501260	12288	
22	11/17/15	99	7531	6240	4280	500134	12120	
23	11/17/15	99	7639	6202	4582	496186	12093	
24	11/17/15	99	7676	6762	4862	501783	12156	
25	11/17/15	98	6844	6160	4414	504517	12281	
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API 47- 051 - 01704 Farm name Berger Well number 4H

PRODUCING FORMATION(S)	DEPTHS	
	TVD	MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs  
 OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ bpd GAS MEASURED BY  
 Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Dunkard Group Sand	160	169	169	169	Fresh Water 169' MD 1" stream
Pittsburgh Coal	830	837	830	837	Coal
Salt Sand	1538	1568	1540	1570	Gas Show @ 1550' 6101 units
Big Lime	1848	1928	1850	1930	Limestone: crm-wh, hd, crpxln
Burgoon (Big Injun)	1927	2117	1930	2120	SS: offwh, wh, cons, clr, trans, lcemt, fg-mg
Weir Sand	2277	2297	2280	2300	SLTST: ltgy-mgy, occ mgy, hrd, vf-fg, tcmt, bio, arg, sl calc
Berea Sand	2507	2530	2510	2533	SS wh, clr, trans, ltgy-gy, cns, lcemt, mg-fg, sbang-ang, arg, msph, non calc, tr flor, ext fast cut, fnt odr, lse pyr
Burket Shale	6287	6304	6447	6482	SH: drkgy, v. drkgy, frm, slty, grty, sbblky-sbfiss, modcalc, embd calc, lse calct
Tully Limestone	6304	6340	6482	6566	LS: ltgy, gy, mgy, frm-hrd, dns, cln, mic-fxl, v. arg
Hamilton Shale	6340	6378	6566	6736	SH: drkgy, v. drkgy, frm, slty, grty, sbblky-sbfiss, carb, modv. calc, lse calct, w/LS
Marcellus Shale	6378		6736		SH: drkgy, v. drkgy, frm, slty, grty, sbblky-sbfiss, non calc, lse calct, lse pyr, w/LS gy, ltgy, hrd, mott, mic, b/n, v. arg

Please insert additional pages as applicable.

Drilling Contractor SEE ATTACHED  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Logging Company ALS Group USA Corp  
 Address 3352 128th Avenue City Holland State MI Zip 49424

Cementing Company SEE ATTACHED  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Stimulating Company Schlumberger Technology Corp.  
 Address 4600 J Barry Court, Suite 200 City Canonsburg State PA Zip 15301

Please insert additional pages as applicable.

Completed by Jackie M. Scholar Telephone 724-564-3721  
 Signature *Jackie M. Scholar* Title Regulatory Compliance Team Lead Date 1/12/2016

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Registry

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CEMENTING CONTRACTORS		
Name Schlumberger Technology Corp	Name Baker Hughes	Name
Address Two Robinson Plaza, Suite 200	Address 5373 West Alabama, Suite 300	Address
City - State - Zip Pittsburgh, PA 15205	City - State - Zip Houston, TX 77056	City - State - Zip

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DRILLING CONTRACTORS		
Driller	Driller	Driller
Name Rocky Mountain Drilling	Name Highlands Drilling LLC	Name Nabors Drilling USA
Address 185 North Vernal Avenue, Suite 2	Address 900 Virginia Street East	Address 10100 NW 10th Street
City - State - Zip Vernal, UT 84078	City - State - Zip Charlestown, WV 25301	City - State - Zip Oklahoma City, OK 73127

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/3/2015
Job End Date:	11/17/2015
State:	West Virginia
County:	Marshall
API Number:	47-051-01704-00-00
Operator Name:	Chevron USA Inc.
Well Name and Number:	Berger 4H
Longitude:	-80.75459907
Latitude:	39.87462821
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,309
Total Base Water Volume (gal):	12,811,464
Total Base Non Water Volume:	



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Base Fluid	Chevron	Carrier/Base Fluid					
			Water (Including Mix Water Supplied by Client)	7732-18-5	100.00000	89.52469	
Proppant	Schlumberger	Proppant					
			Crystalline Silica	14808-60-7	100.00000	10.36184	
7.5% Acid	Schlumberger	Perf Cleanup					
			Hydrochloric Acid	7647-01-0	8.00000	0.00725	
J580	Schlumberger	Gelling Agent					
			Carbohydrate Polymer	Proprietary	100.00000	0.00245	
M300	BASF Corporation	Biocide					
			Water	7732-18-5	75.00000	0.00169	
			Glutaral	111-30-8	25.00000	0.00056	
U042	Schlumberger	Iron Chelating Agent					
			Tetrasodium ethylenediaminetetraacetate	64-02-8	60.00000	0.00164	
			Trisodium nitrilotriacetate (impurity)	5064-31-3	10.00000	0.00027	
			Sodium hydroxide	1310-73-2	5.00000	0.00014	
L058	Schlumberger	Iron Stabilizer					
			Sodium erythorbate	6381-77-7	100.00000	0.00033	
B317	Schlumberger	Scale Inhibitor					



			Ethane-1,2-diol	107-21-1	5.00000	0.00011
			Trisodium ortho phosphate	7601-54-9	5.00000	0.00011
A264	Schlumberger	Corrosion Inhibitor				
			Methanol	67-56-1	40.00000	0.00004
			Aliphatic alcohols, ethoxylated #1	Proprietary	30.00000	0.00003
			Aliphatic acids	Proprietary	30.00000	0.00003
			Prop-2-yn-1-ol	107-19-7	10.00000	0.00001
J134	Schlumberger	Gel Breaker				
			Hemicellulase enzyme	9012-54-8	100.00000	0.00007

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

- \* Total Water Volume sources may include fresh water, produced water, and/or recycled water
- \*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)



# Chevron Appalachia Berger 4H Surveys 0ft to 13216ft MD Survey Geodetic Report

(Def Survey)

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**Report Date:** January 25, 2015 - 10:07 PM  
**Client:** Chevron  
**Field:** WV Marshall County (NAD 83)  
**Structure / Slot:** Chevron Berger Pad / Berger 4H  
**Well:** Berger 4H  
**Borehole:** Original Borehole  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Chevron Appalachia Berger 4H Surveys 0ft to 13216ft MD  
**Survey Date:** January 16, 2015  
**Tort / AHD / DDI / ERD Ratio:** 311.693 ° / 7339.391 ft / 6.673 / 1.144  
**Coordinate Reference System:** NAD83 West Virginia State Plane, Northern Zone, US Feet  
**Location Lat / Long:** N 39° 52' 28.66187", W 80° 45' 16.54975"  
**Location Grid N/E Y/X:** N 503143.270 ftUS, E 1616395.310 ftUS  
**CRS Grid Convergence Angle:** -0.8001 °  
**Grid Scale Factor:** 0.99995013  
**Version / Patch:** 2.7.1043.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 318.775 ° (True North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** KB  
**TVD Reference Elevation:** 1319.470 ft above MSL  
**Seabed / Ground Elevation:** 1287.470 ft above MSL  
**Magnetic Declination:** -7.759 °  
**Total Gravity Field Strength:** 999.3389mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 52750.906 nT  
**Magnetic Dip Angle:** 67.325 °  
**Declination Date:** January 16, 2015  
**Magnetic Declination Model:** HDGM 2014  
**North Reference:** True North  
**Grid Convergence Used:** 0.0000 °  
**Total Corr Mag North->True North:** -7.7586 °  
**Local Coord Referenced To:** Well Head

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	315.00	0.00	-1319.47	0.00	0.00	0.00	N/A	N/A	N/A	503143.27	1616395.31	N 39 52 28.66 W	80 45 16.55
	30.00	0.26	274.77	30.00	-1289.47	0.05	0.01	-0.07	0.87	0.87	0.00	503143.28	1616395.24	N 39 52 28.66 W	80 45 16.55
	60.00	0.29	222.82	60.00	-1259.47	0.09	-0.04	-0.19	0.81	0.10	-173.17	503143.23	1616395.12	N 39 52 28.66 W	80 45 16.55
	90.00	0.15	212.78	90.00	-1229.47	0.07	-0.13	-0.26	0.48	-0.47	-33.47	503143.14	1616395.05	N 39 52 28.66 W	80 45 16.55
	120.00	0.32	264.98	120.00	-1199.47	0.11	-0.17	-0.36	0.86	0.57	174.00	503143.10	1616394.94	N 39 52 28.66 W	80 45 16.55
	150.00	0.28	249.26	150.00	-1169.47	0.19	-0.21	-0.52	0.30	-0.13	-52.40	503143.07	1616394.79	N 39 52 28.66 W	80 45 16.56
	180.00	0.18	197.30	180.00	-1139.47	0.19	-0.28	-0.60	0.74	-0.33	-173.20	503143.00	1616394.71	N 39 52 28.66 W	80 45 16.56
	210.00	0.07	342.00	210.00	-1109.47	0.18	-0.31	-0.62	0.80	-0.37	482.33	503142.97	1616394.69	N 39 52 28.66 W	80 45 16.56
	240.00	0.22	314.11	240.00	-1079.47	0.25	-0.25	-0.67	0.54	0.50	-92.97	503143.03	1616394.64	N 39 52 28.66 W	80 45 16.56
	270.00	0.28	259.97	270.00	-1049.47	0.35	-0.22	-0.78	0.78	0.20	-180.47	503143.06	1616394.53	N 39 52 28.66 W	80 45 16.56
	300.00	0.17	221.22	300.00	-1019.47	0.38	-0.27	-0.88	0.61	-0.37	-129.17	503143.02	1616394.43	N 39 52 28.66 W	80 45 16.56
	330.00	0.22	318.56	330.00	-989.47	0.43	-0.26	-0.95	0.98	0.17	324.47	503143.03	1616394.36	N 39 52 28.66 W	80 45 16.56
	360.00	0.29	268.70	360.00	-959.47	0.54	-0.22	-1.06	0.75	0.23	-166.20	503143.07	1616394.24	N 39 52 28.66 W	80 45 16.56
	390.00	0.30	242.16	390.00	-929.47	0.61	-0.25	-1.21	0.45	0.03	-88.47	503143.03	1616394.10	N 39 52 28.66 W	80 45 16.57
	420.00	0.22	278.98	420.00	-899.47	0.67	-0.28	-1.33	0.60	-0.27	122.73	503143.01	1616393.97	N 39 52 28.66 W	80 45 16.57
	450.00	0.41	303.97	450.00	-869.47	0.82	-0.21	-1.48	0.77	0.63	83.30	503143.08	1616393.83	N 39 52 28.66 W	80 45 16.57
	480.00	0.36	298.41	480.00	-839.47	1.01	-0.11	-1.65	0.21	-0.17	-18.53	503143.19	1616393.66	N 39 52 28.66 W	80 45 16.57
	510.00	0.44	292.86	509.99	-809.48	1.20	-0.02	-1.84	0.30	0.27	-18.50	503143.28	1616393.47	N 39 52 28.66 W	80 45 16.57
	540.00	0.66	285.85	539.99	-779.48	1.45	0.07	-2.11	0.77	0.73	-23.37	503143.37	1616393.20	N 39 52 28.66 W	80 45 16.58
	570.00	0.80	265.37	569.99	-749.48	1.72	0.10	-2.49	0.98	0.47	-68.27	503143.41	1616392.82	N 39 52 28.66 W	80 45 16.58
	600.00	1.11	287.85	599.99	-719.48	2.09	0.18	-2.97	1.60	1.03	74.93	503143.49	1616392.34	N 39 52 28.66 W	80 45 16.59
	630.00	1.25	276.77	629.98	-689.49	2.58	0.30	-3.58	0.89	0.47	-36.93	503143.62	1616391.74	N 39 52 28.66 W	80 45 16.60
	660.00	1.35	279.48	659.97	-659.50	3.10	0.40	-4.25	0.39	0.33	9.03	503143.73	1616391.07	N 39 52 28.67 W	80 45 16.60
	690.00	1.27	282.32	689.97	-629.50	3.64	0.53	-4.92	0.34	-0.27	9.47	503143.87	1616390.40	N 39 52 28.67 W	80 45 16.61
Drilling Office 2.7.1043.0	694.00	1.23	281.87	693.96	-625.53	3.71	0.55	-5.05	0.31	-1.00	-11.25	503143.89	1616390.31	N 39 52 28.67 W	80 45 16.61







Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S °'")	Longitude (E/W °'")
		1	0.000	32.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only		Original Borehole / Chevron Appalachia Berger 4H Surveys 0ft to 13216ft MD					
		1	32.000	694.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT		Original Borehole / Chevron Appalachia Berger 4H Surveys 0ft					
		1	694.000	993.000	Act Stns	30.000	30.000	SLB_MWD-STD		Original Borehole / Chevron Appalachia Berger 4H Surveys 0ft					
		1	993.000	1088.000	Act Stns	30.000	30.000	SLB_INC_ONLY<10		Original Borehole / Chevron Appalachia Berger 4H Surveys 0ft					
		1	1088.000	13174.000	Act Stns	30.000	30.000	SLB_MWD-STD		Original Borehole / Chevron Appalachia Berger 4H Surveys 0ft					
		1	13174.000	13216.000	Act Stns	30.000	30.000	SLB_BLIND+TREND		Original Borehole / Chevron Appalachia Berger 4H Surveys 0ft					

RECEIVED  
Office of Oil and Gas  
JAN 14 2016  
WV Department of  
Environmental Protection

NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

Well is located on topo map 127' feet south of Latitude: 39° 52' 30"

# AS DRILLED PLAT

PARCEL	LESSOR
A	GARY & LINDA BERGER
B	TERRY L. PATTERSON
C	MARY E. PERSINGER, ET AL
D	LANE P. & TOM L. RINE
E	W. B. MINOR HEIRS
F	HOWARD & SHARON A. BLAKE
G	CHAD R. & BETSY J. WILLIAMS
H	STEVEN & CHRISTINA TROY
I	GEORGE W. TRAVIS



LINE	BEARING	DISTANCE
R1	S 14°32'22" W	255.30'
P2	S 45°37'33" W	237.81'
P3	N 27°42'46" W	164.30'
R4	S 76°34'55" W	1281.83'
R5	S 65°42'16" W	1223.39'
R6	S 36°59'45" E	1010.71'

**PERMITTED BOTTOM HOLE LOCATION (BHL)**  
UTM 17-NAD83  
N:4415715.30  
E:519818.83  
NAD83, WV NORTH  
N:509258.98  
E:1612680.51

**AS DRILLED BOTTOM HOLE LOCATION (BHL)**  
UTM 17-NAD83  
N:4415716.70  
E:519818.70  
NAD83, WV NORTH  
N:509263.48  
E:1612666.74

**LEGEND**

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- LEASE LETTER
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE
- AS DRILLED
- EXISTING WELLS
- EXISTING WELLS
- PLUGGED WELLS

**PERMITTED APPROX. LANDING POINT**  
UTM 17-NAD83  
N:4414114.35  
E:520934.96  
NAD83, WV NORTH  
N:503944.15  
E:1616242.40

**PERMITTED APPROX. LANDING POINT**  
UTM 17-NAD83  
N:4414162.43  
E:520910.16  
NAD83, WV NORTH  
N:504103.26  
E:1616163.14

**AS DRILLED SURFACE HOLE LOCATION (SHL)**  
UTM 17-NAD83  
N:4413871.14  
E:520985.62  
NAD83, WV NORTH  
N:503143.27  
E:1616395.31

**PERMITTED SURFACE HOLE LOCATION (SHL)**  
UTM 17-NAD83  
N:4413871.14  
E:520985.62  
NAD83, WV NORTH  
N:503143.27  
E:1616395.31

**Blue Mountain Inc.**  
10125 MASON DIXON HIGHWAY  
BURTON, WV 26562  
PHONE: (304) 662-6486

Well is located on topo map 1282' feet west of Longitude: 80° 45' 00"

FILE #: BERGER 4H-AS DRILLED  
DRAWING #: BERGER 4H-AS DRILLED  
SCALE: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1/2500  
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *George D. Six*  
R.P.E.: \_\_\_\_\_ L.L.S.: P.S. No. 2000

**GEORGE D. SIX**  
LICENSED  
No. 2000  
STATE OF WEST VIRGINIA  
PROFESSIONAL SURVEYOR

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP  
OFFICE OF OIL & GAS  
601 57TH STREET  
CHARLESTON, WV 25304



DATE: SEPTEMBER 28, 2015  
OPERATOR'S WELL #: BERGER 4H-AS DRILLED  
API WELL #: 47 51 01704  
STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: MIDDLE GRAVE CREEK - GRAVE CREEK ELEVATION: 1287.47'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN, OH-WV 7.5'

SURFACE OWNER: GARY & LINDA BERGER ACREAGE: 51.753±

OIL & GAS ROYALTY OWNER: GARY & LINDA BERGER ACREAGE: 527.300±

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,538'± TMD: 13,378'±

WELL OPERATOR: CHEVRON APPALACHIA, LLC DESIGNATED AGENT: KENNETH E. TAWNEY  
Address: 800 MOUNTAIN VIEW DRIVE Address: 500 LEE STREET, EAST SUITE 1600  
City: SMITHFIELD State: PA Zip Code: 15478 City: CHARLESTON State: WV Zip Code: 25301-3202

04/08/2016